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BENEFITS OF FERMENTED FOODS

By: *Frontiers in Microbiology*

Probiotic Organisms

- Probiotics are defined as live microorganisms that, when administered in adequate amounts, confer a health benefit on the host.¹
- Fermented milk products are the most traditional source of lactobacillus strains.
- Kimchi contains *Lactobacillus plantarum* which has been found to prevent the growth of *Helicobacter pylori*.
- Probiotic strain *L. acidophilus* La-5 produces conjugated linoleic acid (CLA) which has anti-cancer properties.

Antimicrobial Properties

Species of lactic acid bacteria found in fermented vegetable and milk products contain antimicrobial compounds that provide protection from many different pathogens including *Listeria*, *E. coli*, and *Salmonella*.

Antioxidant Activity

Fermented foods also have properties that offer free radical scavenging activity and phenolic compounds.

Peptide Production

Bioactive peptides are formed during fermentation that provide functional properties such as immunomodulatory, antithrombic, and antihypertensive properties.

Digestion & Absorption

Fermentation produces enzymes that help break down complex compounds that support digestion and absorption of nutrients. This is why some people can tolerate fermented dairy like yogurt and cheese, but not milk.

Synthesis and availability of nutrients

Fermentation can also increase the availability of vitamins and minerals for our bodies to absorb. Additionally, by boosting the beneficial bacteria in your gut, you are promoting their ability to manufacture B vitamins and synthesize vitamin K.

Immune functions

A large proportion of the immune system is housed in the gut. By consuming probiotic-rich foods, you are supporting the mucosa (gut lining) as a natural barrier, making the immune system more robust. A lack of beneficial bacteria allows disease causing microbes to grow causing inflammation in the gut wall. If you have recently taken a course of antibiotics, probiotic foods are particularly helpful.

Prevention from Cancer

Some lactic acid bacteria fermented foods have antimutagenic and anticarcinogenic activities including kefir, sauerkraut, kimchi, and yogurt.

Resource

Tamang, Jyoti P., et al. "Functional properties of microorganisms in fermented foods." *Frontiers in microbiology* 7 (2016): 578.



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FERMENTATION TIPS

<https://www.culturesforhealth.com/learn/natural-fermentation/fermented-vegetables-troubleshooting-faq/>

1. Use fresh organic vegetables
2. Pink Himalayan Salt is best. Sea salt holds more moisture and iodized table salt will kill the ferment.
3. Use filtered water that is fluoride and chlorine free.
4. Be sure to keep the vegetables submerged under the brine at all times. Top off with more brine if necessary.

Troubleshooting

Vegetables don't fit in the jar: As long as they are below the brine with at least 1-2 inches of space they will ferment fine. If you need to use a second jar that's fine just weigh down the vegetables so they stay below the brine.

Vegetables are rising up in the jar: This is normal as gas is produced during fermentation. Push the vegetables back down with a clean hand or non-metal utensil. If you need to add just a little bit more liquid to cover them you can add a little bit of filtered water. If more liquid is needed then add more brine.

Brine becomes cloudy: This is normal. It is the beneficial bacteria doing their job creating lactic acid.

White film forms on the surface of the brine: It is called kahm yeast and it will not hurt you but it will make your vegetables yeasty tasting and soft. Just skim it off. Usually means too much oxygen is present. Top off with extra brine, if necessary.

Slimy, mushy vegetables: possibly fermented at too high a temperature, not enough salt or the produce was not fresh enough. Discard any slimy vegetables.

Mold: A tiny bit is not a problem, just scrape off and discard any vegetable matter it was touching. Top ferment off with extra brine. Usually means vegetables are not under the brine, and/or exposed to oxygen.

Nothing happens: Too cold or too much salt.

When in doubt, throw it out! Fermented vegetable should have a pleasant, if sour, aroma. Never consume anything you are not sure about.

Temperatures

Generally, the warmer the temperature, the faster it will ferment. The cooler the temperature, the longer it will take to ferment. Faster is not necessarily better and in fact, most experts recommend a cooler, slower ferment. Do not put in direct sun. You want to keep the temperature in the following ranges:

Vegetables – between 64-74 degrees (room temperature)

Kefir – between 68-85° (room temperature)

Fermentation Product Options

<https://www.pickl-it.com/>

<https://www.makesauerkraut.com/fermentation-lids/>

<https://janeskitchenmiracles.com/best-fermenting-pots-reviewed/>

Resources

<https://www.culturesforhealth.com/learn/natural-fermentation/fermented-vegetables-troubleshooting-faq/>